

**Notice of Allowability**

Application No.

09/681,398

Applicant(s)

WANG ET AL.

Examiner

Art Unit

Samuel Broda

2123

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicants' Amendment mailed on 16 February 2005.
2. ☒ The allowed claim(s) is/are 20-30 and 33-42.
3. ☒ The drawings filed on 29 March 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 2/16/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

  
**SAMUEL BRODA, ESQ.**  
**PRIMARY EXAMINER**

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1. This communication is in response to Applicants' Amendment mailed on 16 February 2005. In the Amendment, claims 1-19 were canceled and claims 20-30 and 33-42 were added; claims 20-30 and 33-42 are pending.

*Reasons for Allowance*

2. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

The closest prior art of record shows:

- (1) a method for analyzing a computer generated model, including sampling a performance surface (Ye et al, "Algorithmic Construction of Optimal Symmetric Latin Hypercube Design");
- (2) a method for performing design trade-off based on a total score (Ali et al, U. S. Patent 6,405,344);
- (3) an augmented robust concept exploration method (Bailey et al, "Using Response Surfaces to Improve the Search for Satisfactory Behavior in System Dynamics Models"); and
- (4) the DOE/Opt system that integrates design of experiments, response surface model generation, and nonlinear constrained optimization (Boning et al, "DOE/Opt: A System for Design of Experiments, Response Surface Modeling, and Optimization Using Process and Device Simulation").

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**2.1** Applicants' first set of claims consists of claims 20-30 and 33-41.

Independent claim 20 and independent claim 34 are each directed to a method of interactively analyzing and optimizing a computer generated model of a design of a vehicle. Each independent claim identifies the distinct limitations of: “determining a residual output value using the randomly selected sample points, wherein the residual output value is determined by approximating a performance surface response for the randomly selected sample points” and “adopting the design as a final design if the performance meets the predetermined criteria, otherwise continuing to optimize the overall design to be robust using a relationship between a value of the performance and a probability of occurrence.”

Because the closest prior art does not appear to teach or suggest the combination of determining residual output using randomly selected sample points, followed by robustly optimizing the design using a relationship between a performance value and a probability, claims 20-30 and 33-41 are deemed allowable.

**2.2** Applicants' second set of claims consists of claim 42.

Independent claim 42 is directed to a system of interactively analyzing and optimizing a computer generated model of a design of a vehicle. This claim identifies the distinct limitations of: “determines a residual output value using the randomly selected sample points, wherein the residual output value is determined by approximating a performance surface response for the randomly selected sample points” and “adopts the design as a final design if the performance

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meets the predetermined criteria, otherwise continues to optimize the overall design to be robust using a relationship between a value of the performance and a probability of occurrence.”

Because the closest prior art does not appear to teach or suggest the combination of determining residual output using randomly selected sample points, followed by robustly optimizing the design using a relationship between a performance value and a probability, claim 42 is deemed allowable.

3. Any comments considered necessary by Applicants must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

4. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Samuel Broda, whose telephone number is (571) 272-3709. The Examiner can normally be reached on Mondays through Fridays from 8:00 AM – 4:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner’s supervisor, Kevin Teska can be reached at (571) 272-3716. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist, whose telephone number is (571) 272-2100.



**SAMUEL BRODA, ESQ.  
PRIMARY EXAMINER**